

Work Order ID 69133

Tuesday, May 03, 2011 10:46:13 AM



Page 1

Item ID: D2741

Accept



Setup Start



Revision ID:

Stop



Item Name: Blade, 350 Skidtube

Start Date: 5/3/2011 Start Qty: 40.00



Cust Item ID:

Required Date: 5/10/2011 Req'd Qty: 40.00



Customer:

Reference:

Run Start



Approvals: Process Plan: CL Date: 11/05/03 Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D2741	Rev C

100 0.00



BAND SAW

Bandsaw

Memo

Jeaspa Bandsaw

Cut blanks 13.850" long +0.063" -0.000"

0.00

SL 11/05/05

30

110



HAAS CNC VERTICAL MACHINING #1

HAAS 1

Memo

HAAS CNC vertical machine #1

1-Machine per folio FA108

0.00

0.00

SL 11/05/05

30

120



QC2- Inspect parts off machine FA1/FA1B

QC

Memo

Quality Control

0.00

0.00

SL 11/05/05

30

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 69133

Tuesday, May 03, 2011 10:46:14 AM



Page 2

Item ID: D2741

Accept



Setup Start



Revision ID:

Stop



Item Name: Blade, 350 Skidtube

Start Date: 5/3/2011 Start Qty: 40.00



Cust Item ID:

Required Date: 5/10/2011 Req'd Qty: 40.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

QC8- Inspect parts - second check

0.00

B.A 11/05/09

30

0



QC

Memo

0.00

Quality Control

140

Small Fab

0.00

SB 11/05/09

30



Small Fab

Memo

0.00

Small Fab

1-Deburr 2-Bend per Dwg D2741

150

QC5- Inspect part completeness to step on W/O

0.00

S 11/05/09

Count
x30



QC

Memo

0.00

Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Cust Item ID:

Required Date: 5/10/2011 Req'd Qty: 40.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 Outsource1	Outsource process - Heat Treat	0.00							
	Memo	0.00							
	Outsource process - Heat Treat								
	Issue P/O: <u>14040</u> <input type="checkbox"/> Harden material as per Dwg D2741 <input type="checkbox"/> Min. Ultimate Tensile Strength = 152 ksi (34-40 HRC) <input type="checkbox"/> Min. Yield Tensile Strength = 141 ksi <input type="checkbox"/> Test report or Certification required								
170 Packaging	Receive & Inspect for Damage & Mat'l Certs	0.00							
	Memo	0.00							
	Packaging								
	Ensure Test report or Certification attached								
180 QC	QC5- Inspect part completeness to step on W/O	0.00							
	Memo	0.00							
	Quality Control								

CY 11/05/09 (30)

P4/0/29 (32)

contd (30)

Work Order ID 69133

Tuesday, May 03, 2011 10:46:14 AM



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Item ID: D2741

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Setup Start



Revision ID:

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Item Name: Blade, 350 Skidtube

Start Date: 5/3/2011 Start Qty: 40.00



Cust Item ID:

Required Date: 5/10/2011 Req'd Qty: 40.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190 	Small Fab	0.00							
Small Fab	Memo	0.00							
Small Fab	1-Pass in deburring machine <input type="checkbox"/> 2-Grind off edges								
195 	HandFinish	0.00							
Hand Finishing	Memo clean with wash & wipe to remove oil	0.00							
200 	Powdercoat	0.00							
Powder Coating	Memo	0.00							

White Gloss(Ref:4.3.5.2) per QSI005 4.3-Steel

0.00

Memo

START TIME:

FINISH TIME:

OVEN TEMPERATURE:

10:30

11:00

400

X30 ϕ $\frac{1}{2}$ 4/10/26

30X ϕ M-L 11/05/28

M116964

Work Order ID 69133

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Tuesday, May 03, 2011 10:46:14 AM

Item ID: D2741

Accept



Setup Start



Revision ID:

Stop



Item Name: Blade, 350 Skidtube

Start Date: 5/3/2011 Start Qty: 40.00



Cust Item ID:

Required Date: 5/10/2011 Req'd Qty: 40.00



Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

210

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

11/5/30 f (30)

220

Identify as per dwg & Stock Location: 466

0.00



Packaging

Memo

0.00

Packaging

11/5/30 f (30)

230

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/5/31 f (30)

11-05-30
(30)

Picklist Print

Tuesday, May 03, 2011 10:46:10 AM

Page 1

Work Order ID: 69133



Parent Item: D2741



Parent Item Name: Blade, 350 Skidtube

Start Date: 5/3/2011

Required Date: 5/10/2011

Start Qty: 40.00

Required Qty: 40.00

Comments: IPP Rev: D 00.11.15 Removed P/O turning - in house process EC
 IPP Rev: E 06-03-20 As Per Rev C JLM
 IPP Rev: F 06.04.20 Added grinding after heat treating EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

M4130NB0.500X03.00
0

Purchased

No

100

f

47.2500

1.1541

48.59368



4130 Bar 0.500 x 3.00

52 11/05/04

Location

Loc Qty

Loc Code

MAT

35.43

117337

35.43

MAT034

11.82

117337

11.82

35.43

11.82

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

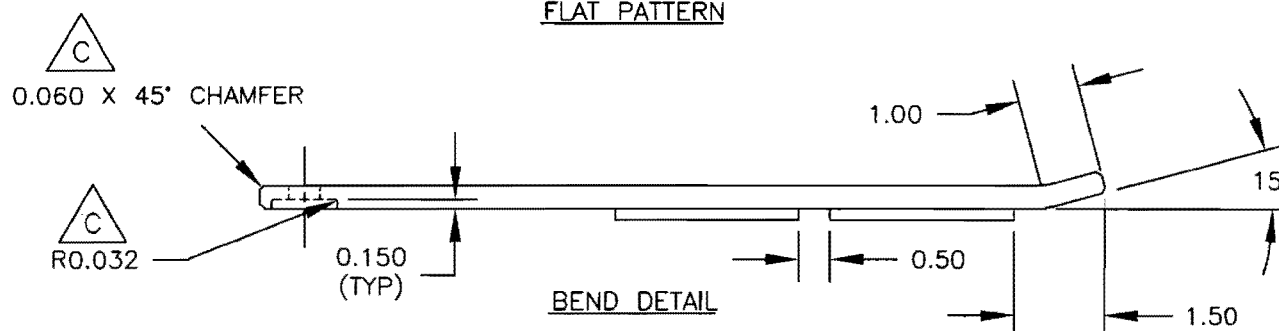
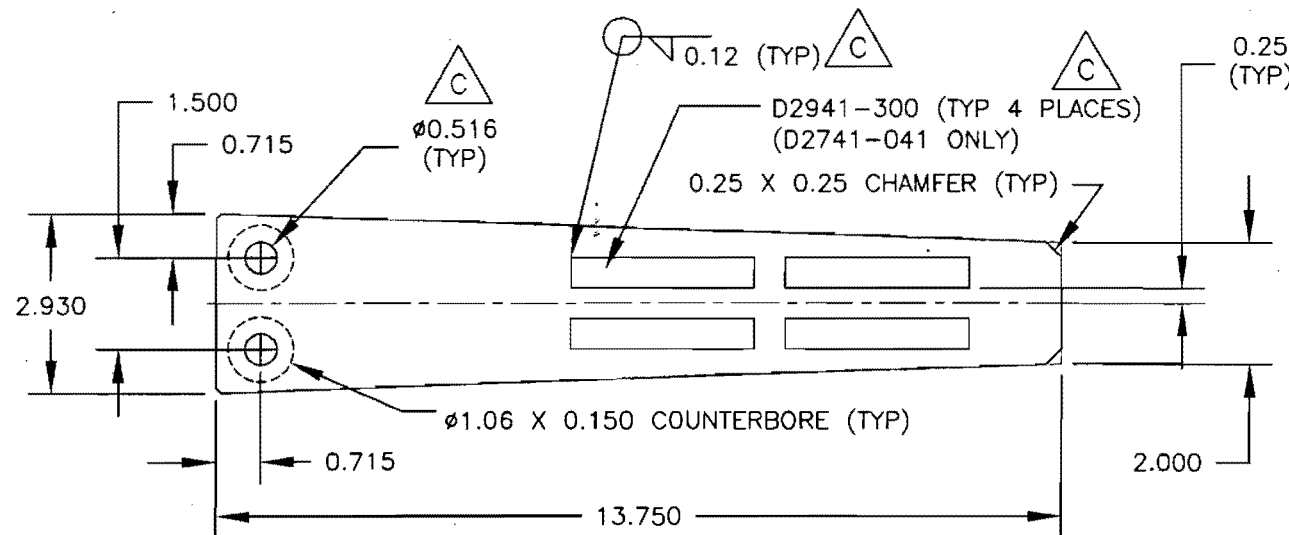
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

RELEASED
06-02-07



D2741 BLADE

- 1) MATERIAL: AISI 4130 STEEL 0.375 THICK
MIN. ULTIMATE TENSILE STRENGTH = 152 ksi (34-40 HRC)
MIN. YIELD TENSILE STRENGTH = 141 ksi
- 2) FINISH: POWDER COAT WHITE (REF. 4.3.5.2) PER DART QSI 005 4.3
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) BREAK ALL SHARP EDGES 0.030 TO 0.060
- 6) TO MAKE D2741-041, WELD D2941-300 (4) AS SHOWN ABOVE.
REMOVE POWDER COAT FROM SURFACE OF D2941-300
- 7) TO MAKE D2741-043, WELD 7560 HARDCOAT ROD INSTEAD OF D2941-300

DESIGN	DRAWN BY	DART AEROSPACE USA, INC.
PH	PH	PORT HADLOCK, WA
CHECKED	APPROVED	DRAWING NO.
PH	PH	D2741
DATE	DATE	TITLE
06.01.12	06.01.12	BLADE
A	98.04.16	NEW ISSUE
B	98.09.01	CHANGE C'SINK TO C'BORE
C	06.01.12	LARGER HOLE, ADD RADIUS AND CHAMFER ADD -041/-043 OPTIONS
		SCALE
		1:3
		REV. C
		SHEET 1 OF 1

CL 11/05/03
WID: 69133



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO14040

Purchase Order Date 5/9/2011

PO Print Date 5/9/2011

Page Number 1 of 1

Order From :

VC-MET004

METCOR INC.
560 BOUL. ARTHUR SAUVE
SAINT-EUSTACHE, QC J7R 5A8
CA

Contact Name

Vendor Phone 450 473 1884

Vendor Fax 450 491 5498

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

10127-2607

Tax Resale Nbr

Net 30

Terms

Currency

CAD

FOB

Destination-Collect

Ship To :

DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

PAID
62110569

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	69133	D2741 BLADE	5/16/2011 Yes	30.00	FedEx PI collect	\$10.3300	\$309.90

Special Inst: HARDEN MATERIAL AS PER DWG
D2741 REV. C
B69133
MINIMUM ULTIMATE TENSILE
STRENGTH = 152 KSI
MINIMUM YIELD TENSILE STRENGTH
= 141 KSI
34-40 HRC

PO Total: \$309.90

CERTIFICATE OF CONFORMITY
REQ'D UPON DELIVERY

Change Nbr: 1

Change Date: 5/9/2011

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Recu de Livraison

Order	Shipper	Shipping Seq.
166416	1	51164

Shipped Complete

Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

Shipped To:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

Purchase Order Number	Customer Shipper No.	Material Type	Order Date	Carrier
14040		4130	2011/5/10	FEDEX

Quantity	Part No. / Part Name / Part Description	Pounds
30	D2741 BLADE REF. 69133 2 BOITES DE CARTONS	105,

Container Type 	# Of Containers	Container Comments
BOITE DE CARTON	2	

CERTIFICATS REQUIS

PACKING	
----------------	--

Quantity Shipped: 30

Pounds Shipped: 105,00

Quantity Remaining: 0

Pounds Remaining: 0,00

CERTIFICATS REQUIS

Quantity Shipped: 30

Pounds Shipped: 105,00

Signature:

Date:



Rapport d'inspection

Metcor Inc.
560, boul. Arthur-Sauvé
St-Eustache (Québec) J7R 5A8
Tél.: (450) 413-7088
Fax Administration: (450) 491-5498
Fax Production: (450) 491-6454

Order Load

166416

Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

Shipped To:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

Customer PO / PO du Client	Customer Shipper No.	Material Type / Material	Mat'l Heat Code	Lot Number
14040		4130		
PROCESSING SPECIFICATIONS				
SEL HARDEN HARDEN AND TEMPER SAE AMS 2759/1 REV.E				
Requirement	Specified	Tests Performed	Test Results	
HARDNESS	34 - 40 HRC	30	39 - 40 HRC	
TENSILE (KSI)	152 - 182 KSI		177 - 182 KSI	
Quantity	Weight	Part Number / Part Description		
30	105	D2741 BLADE REF. 69133 2 BOITES DE CARTONS 8 n/05/24		

COMMENTS

INSPECTOR:



DATE: 2011-05-20



METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certification

Order	Load
166416	1

Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

Shipped To:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

Customer PO / PO du Client	Customer Shipper No.	Material Type / Material	Mat'l Heat Code	Lot Number
14040		4130		

PROCESSING SPECIFICATIONS


SEL HARDEN 

HARDEN AND TEMPER

SAE AMS 2759/1 REV.E

Requirement	Specified	Tests Performed	Test Results
HARDNESS	34 - 40 HRC	30	39 - 40 HRC
TENSILE (KSI)	152 - 182 KSI		177 - 182 KSI

Quantity	Weight	Part Number / Part Description
30	105	D2741 BLADE REF. 69133 2 BOITES DE CARTONS

Operation	Specified Temp	Specified Soak Time	Atmosphere	Carbon Potential	Q-Media Q-Temp	Furnace# Load #	Start Date	Time In	Time Out	Date Complete
1,00 CONT. INIT.	LAVAGE		si nécessaire							
2,00 PREPARINC	COMPTAGE									
3,00 PREHEAT 1	1000	1:00 1:30	air			133				
4,00 SEL HARDE	1575	0:40	SEL		BRINE	106				
5,00 WASH	150	0:30	soap							
6,00 SNAP TEMF	400	2:00	air			639				
7,00 SANDBLAS			Sablage							
8,00 DIST INSP										

**METCOR INC.**

560 BOUL. ARTHUR-SAUVÉ

ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certification

Order	Load
166416	1

Customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

Shipped To:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

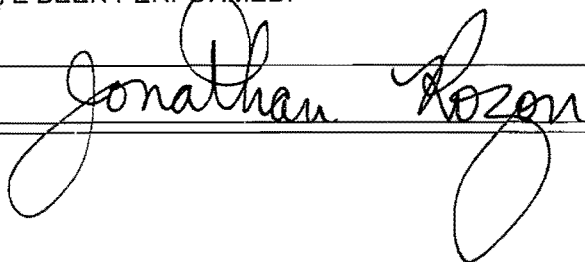
1

Operation	Specified Temp	Specified Soak Time	Atmosphere	Carbon Potential	Q-Media Q-Temp	Furnace# Load #	Start Date	Time In	Time Out	Date Complete
9,00 TEMPER	875 +/- 10°F	4 hrs	air			612				
10,00 HARDN INS										
11,00 SANDBLAS			Sablage							
12,00 HUILAGE			huile							
13,00 FINAL INSP							05-20-2011			05-20-2011

COMMENTS

ALL THE HEAT TREATMENT PROCESSING PERFORMED ON THIS ORDER WAS ACCOMPLISHED USING HEAT TREATMENT EQUIPMENT THAT MEETS THE REQUIREMENTS OF AMS 2750. ALL THE HEAT TREATMENT OPERATIONS WERE ACCOMPLISHED IN ACCORDANCE WITH THE REQUESTED/REQUIRED HEAT TREATMENT SPECIFICATION AND ALL REQUIRED VERIFICATIONS TEST HAVE BEEN PERFORMED AND DOCUMENTED. NO UNAUTHORIZED CHANGES OR DEVIATIONS TO REQUIRED HEAT TREATMENT SPECIFICATIONS OR PROCEDURES HAVE BEEN PERFORMED.

APPROVED BY:



DATE: 2011-05-20

We certify that all the information on this report is exact and in accordance with the order requirements. / Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client.

